

Test Report Stability of Mix

Project Name	PACKAGE 5(1) Improvements of Road Adjacent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	2
Date	8-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.7	9 KN (min)
2	Marshal Flow	mm	3.51	2 – 4 mm
3	Percent of Air Voids in mix	%	4.5	3 – 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	71.5	65 – 75 %
5	Density	g/cc	2.22	2.22 g/cc

Note:

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Project Division
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Bangalore



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MECADEZ CORE TECHNOLOGIES PRIVATE LIMITED
PROJECT MANAGEMENT & CONSULTANCY SERVICES

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Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	3
Date	8-Apr-2018

SL No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.7	9 KN (min)
2	Marshal Flow	mm	3.42	2 - 4 mm
3	Percent of Air Voids in mix	%	4.6	3 - 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	72.5	65 - 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	4
Date	10-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.8	9 KN (min)
2	Marshal Flow	mm	3.5	2 - 4 mm
3	Percent of Air Voids in mix	%	4.7	3 - 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	71.35	65 - 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Project Name	PACKAGE 5(1) Improvements of Road Adjacent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	5
Date	10-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.5	9 KN (min)
2	Marshal Flow	mm	3.4	2 - 4 mm
3	Percent of Air Voids in mix	%	4.85	3 - 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	70.1	65 - 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Project Name	PACKAGE 5(1) Improvements of Road Adjacent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	6
Date	10-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.6	9 KN (min)
2	Marshal Flow	mm	3.2	2 - 4 mm
3	Percent of Air Voids in mix	%	4.45	3 - 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	71.5	65 - 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Project Name	PACKAGE 5(1) Improvements of Road Adjacent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	7
Date	12-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.3	9 KN (min)
2	Marshal Flow	mm	3.1	2 - 4 mm
3	Percent of Air Voids in mix	%	4.35	3 - 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	72.1	65 - 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Test Report

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Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	8
Date	12-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.4	9 KN (min)
2	Marshal Flow	mm	3.4	2 - 4 mm
3	Percent of Air Voids in mix	%	4.25	3 - 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	72	65 - 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	9
Date	12-Apr-2018

Sl. No.	Description	Unit	Test 1	Requirements as per MORT&H
1	Marshal Stability	KN	9.8	9 KN (min)
2	Marshal Flow	mm	3.7	2 - 4 mm
3	Percent of Air Voids in mix	%	4.3	3 - 6 %
4	Percent of Voids in Mineral Aggregates filled with Bitumen	%	71.85	65 - 75 %
5	Density	g/cc	2.22	2.22 g/cc

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Test Report

Binder Content and Mix Gradation

Project Name	PACKAGE 5(1) Improvements of Road Adjacent to Yelahanka Lake From Kenchanahalli to Chowdeshwari temple in Ward No.2. 2)Improvements and Asplating to New post office Main Road and cross roads in Ward no 01. 3)Improvements and Asplating to suggappa layout cross roads in ward No 01. 4)Improvements and Asplating to Shanimahathma swamy temple road and surabi layout 2nd Main and cross Roads in ward No 01. 5)Asplating to Balance Roads in A & B Sector of Yelahanka New Town in Ward No 04)
Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	1
Date	8-Apr-2018

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	E _b	1080
2	Weight of bowl + Sample before extraction (w _{sb})	gm	w _{sb}	1780
3	Weight of Sample taken for the test (S _b)	gm	S _b = w _{sb} - E _b	700
4	Weight of bowl + Sample after extraction (w _{sa})	gm	w _{sa}	1740
5	Weight of Sample after extraction (i.e. washed aggregates) (S _a)	gm	S _a = w _{sa} - E _b	660
6	Weight of Filter paper before extraction (F _b)	gm	F _b	2
7	Weight of Filter paper after extraction (F _a)	gm	F _a	4
8	Weight of filler on filter paper (F _d)	gm	F _d = F _b - F _a	2
9	Weight of Bitumen without considering Filter paper (W _b)	gm	W _b	40
10	Weight of the Bitumen with considering Filter paper (W _a)	gm	W _a = W _b - F _d	38
11	Percentage of the Bitumen (i.e. Binder Content) (% _B)	(%)	W _a / S _b X 100	5.43

Sl. No.	L.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0.00	0.00	0.00	100.00	100.00	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	673.00	16.83	16.83	83.18	72-100	
3	9.50	432.00	10.80	27.63	72.38	70-88	
4	4.75	231.00	5.78	33.40	66.60	53-71	
5	2.36	476.00	11.90	45.30	54.70	42-58	
6	1.18	342.00	8.55	53.85	46.15	34-48	
7	0.60	436.00	10.90	64.75	35.25	26-38	
8	0.30	428.00	10.70	75.45	24.55	18-28	
9	0.15	381.00	9.53	84.98	15.03	12-20	
10	0.08	362.00	9.05	94.03	5.97	(4-10)	

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Asst. Executive Engineer
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Binder Content and Mix Gradation

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Client	Executive Engineer Project Yellahanka Division
Job No	MCTPL/BBMP/Project Division Yelahanka ZONE /P-5/1/2017-2018
Mix Type	Bituminous Concrete (BC)
Contractor	Sri. R.LOKESH
Test Method	Specification for Road & Bridge Works, MORT&H, Revision V.
Location	Bay
Material	Bituminous Concrete mix
Sample No	2
Date	8-Apr-2018

Sl. No.	Description	Unit	Computation	Test Result
1	Weight of Empty bowl before Extraction (E)	gm	E _b	1080
2	Weight of bowl + Sample before extraction (w _{sb})	gm	w _{sb}	1800
3	Weight of Sample taken for the test (S _b)	gm	S _b = w _{sb} - E _b	720
4	Weight of bowl + Sample after extraction (w _{sa})	gm	w _{sa}	1759
5	Weight of Sample after extraction (i.e. washed aggregates) (S _a)	gm	S _a = w _{sa} - E _b	679
6	Weight of Filter paper before extraction (F _b)	gm	F _b	2
7	Weight of Filter paper after extraction (F _a)	gm	F _a	4
8	Weight of filler on filter paper (F _d)	gm	F _d = F _b - F _a	2
9	Weight of Bitumen without considering Filter paper (W _b)	gm	W _b	41
10	Weight of the Bitumen with considering Filter paper (W _a)	gm	W _a = w _b - F _d	39
11	Percentage of the Bitumen (i.e. Binder Content) (%)	(%)	W _a / S _b X 100	5.42

Sl. No.	I.S. Sieve size (mm)	Weight Retained (gm)	Percentage of weight Retained (%)	Cumulative Percentage of weight retained (%)	Cumulative % of Passing		Remarks
					Test Result	Gradation Limits as per MORT&H	
1	19.00	0.00	0.00	0.00	100.00	100.00	Gradation satisfies the MORT&H Grade II Specification for Bituminous Concrete
2	13.20	673.00	16.83	16.83	83.18	72-100	
3	9.50	432.00	10.80	27.63	72.38	70-88	
4	4.75	231.00	5.78	33.40	66.60	53-71	
5	2.36	476.00	11.90	45.30	54.70	42-58	
6	1.18	342.00	8.55	53.85	46.15	34-48	
7	0.60	436.00	10.90	64.75	35.25	26-38	
8	0.30	428.00	10.70	75.45	24.55	18-28	
9	0.15	381.00	9.53	84.98	15.03	12-20	
10	0.08	362.00	9.05	94.03	5.97	(4-10)	

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